**ENVIRONMENTAL ASSESSMENT**

**Arizona State Veterans Cemetery**
**Cochise County, Arizona**

**ARIZONA DEPARTMENT OF VETERANS SERVICES**

**Notice of Availability**
**Arizona State Veterans Cemetery**
**Environmental Assessment**

The Arizona Department of Veterans Services and the Arizona Department of Administration announce the availability of an Environmental Assessment (EA) and "Finding of No Significant Impact" (FONSI) for the funding and construction of a veteran's cemetery on Fort Huachuca Property. The Arizona State Veterans Cemetery will provide interment for approximately 15,555 veterans at an 130-acre site immediately west of Buffalo Soldier Trail, east of the Fort Huachuca base golf course, and south of the main base entrance. The Environmental Assessment has been prepared in accordance with the regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA), Section 1508.13.

For further information and/or a copy of the EA, please contact the Arizona Department of Administration (ADOA), 15 S. 15th Avenue, Suite 101, Phoenix, Arizona 85007, (602) 542-1984 or the Arizona Department of Veterans Services, 3225 N. Central Avenue, Suite 910, Phoenix, Arizona 85012, (602) 255-3373. The EA may also be reviewed on-line at azvets.com. Two copies of the EA are held on reserve at the Sierra Vista Public Library, 2600 East Acoma, Sierra Vista, Arizona.

Public comments on the proposed project are welcomed and should be received at the above address no later than 4:30 p.m., Friday, July 14, 2000.

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## 1.0 DESCRIPTION AND NEED

This Environmental Assessment (EA) is intended to fulfill the requirements of the National Environmental Policy Act (NEPA), as set forth in Code of Federal Regulations, Chapter 40, Part 1500-1517, July 2, 1992. The EA also was performed in conformance with United States Department of Veterans Affairs, Office of Facilities Management, "Environmental Compliance Manual,' updated July 1998 as requested by the ADOA. The format of the EA was derived from the Manual.

The Arizona State Veterans Cemetery is proposed for a 130-acre location on Fort Huachuca Property, Cochise County, Arizona. The Property has frontage onto Buffalo Soldier Trail (BST), three quarters of a mile south of the intersection of BST and Fry Boulevard, the Main Entry Gate to Fort Huachuca. A Site plan is presented in Appendix A and site photographs are found in Appendix B. A 1997 aerial photograph depicting current site conditions is presented in Appendix C.

The legal description of the Property is the southeast ¼ of Section 4, the southwest ¼ of Section 3, and the northeast ¼ of Section 10 of Township 22 South, Range 20 East. Currently, this parcel has not been assigned a parcel number.

The project is needed to provide cemetery facilities for approximately 125,000 veterans in southern Arizona[i]. The nearest veterans' cemetery is the National Memorial Cemetery of Arizona located north of Phoenix. The current facility is considered too far away for the 125,000 veterans in southern Arizona.[ii]

Experience indicates that about one-fourth of the veterans in the area will choose to be buried in a veteran cemetery, bringing the usage estimate to just over 25,000 the next two decades. According to the VA's National Cemetery System, the greatest majority of burials come from within a 75-mile radius of a cemetery service area. Based on that assumption, veterans residing in southern Arizona will not use the National Memorial Cemetery in Phoenix. As a result, these veterans and their families are deprived of the opportunity to be laid to rest in a veteran cemetery.

Federal lawmakers have been supportive of the cemetery and have worked to modify the grant program administered by the State Cemetery Grant Service (SCGS). In 1999 the grant was expanded from a 50-50 match program to paying for 100 percent of all SCGS required costs. Subsequently, the Department of Defense included the land conveyance for Fort Huachuca, Arizona in its FY 2001 budget.

The Environmental Baseline Survey prepared by Fort Huachuca and dated November 1999 states the following: "Currently, the Property is a part of the Fort Huachuca military installation, established in 1877. The installation was in continuous federal ownership through 1946. During the years 1947-1951, the installation was transferred to the Arizona National Guard. Since 1951, the installation has been an active military installation. The land has historically been used to support Army communications and electronic field activities" and is seasonally used as hunting grounds.[iii]

Immediately to the east of the Property is Buffalo Soldier Trail (BST). The proposed access to the facility is from BST and across Boston Road. Boston Road is adjacent to and parallels the eastern boundary of the property. This road has historically been and is currently used as the main access road to the southern portions of Fort Huachuca. This access road is an integral piece of Fort Huachuca operations and design plans need to include access by Fort Huachuca personnel.

The proposed action involves Capital facilities components including, an administration building, a maintenance building and yard, a committal shelter, a columbium for urn interment, vehicle &

equipment storage building roads and parking lot(s).[iv] The capital facilities are all included Phase I of the Project. The general layout will be as follows:

- A greater than 1,632 square foot administration building,
- A 1,065 committal shelter-comfort station,
- A 1,551 square foot maintenance building,
- A 1,264 square foot Vehicle & Equipment Storage Building will contain a vehicle service bay, storage areas, work benches, a locker room, and office space,
- Internal roadways with a total area of approximately 245,000 square feet would be constructed.

The burial gardens will be designed and constructed to conserve space with single- and double-crypt vaults installed during the initial construction portion of each Phase of the project. Actual construction details are provided in the master plan for the facility. The master plan is included Appendix D.

Landscaping design would be based on existing vegetation and proposed roads and burial plots. Native vegetation will be preserved to the extent possible. New plantings would be designed to complement existing vegetation and topographic features.

It is estimated that for the 30 year build-out period the site has a peak annual water requirement of 9,283,000 gallons of water. This equals 28.49 Acre-Feet (ac-ft) of water per year or 25,432 gallons per day (Xeris 2000). The Water Use Analysis Report prepared by Xeris Group is presented in Appendix E.

The project will be completed in three phases:

Phase I

Phase I will involve developing approximately 30 acres of the 130 acre facility and will include a time frame of 10 years from opening. Capital facilities (grounds, buildings, utilities, irrigation systems, etc.) would be completed during phase I. The initial construction phase will include the infrastructure required for the first 10 years, all roadways required for the foreseeable future and miscellaneous design features.

Phase II

Phase II will add an additional 30 acres for use and will encompass a time frame from 11 to 20 years from opening.

Phase III

Phase III will include the remaining 70 acres and will be opened in year 21. Phase II and Phase III will only add acreage and burial plots. No additional buildings will be added. Although a total of 130 acres will be included in the Cemetery site, only approximately 10 percent of the 130 acres will be developed with buildings, roads and burial plots. The remainder of the cemetery site will remain undeveloped.

## 2.0 ALTERNATIVES CONSIDERED

In 1995, the issue of a State veterans cemetery in southern Arizona was addressed. The Arizona Veterans Service Commission (agency name before 8/6/99) conducted a feasibility study to build a cemetery with the VA grant program. At that time, the grant was for 50% of the cost to build such a facility but excluded cost for the property and administrative costs to transfer the land.

Before the current site was selected, the agency researched several potential locations for the state veterans cemetery. Since there were no funds available, only property that might be available to the agency at no cost was considered. The cemetery was initially intended to be built in Pima County.

The State Land Department investigated State Trust Lands located between Tucson and Nogales. The research and subsequent analysis started in March and continued through July 1997. The State Trust Lands considered were:

- Southeast of Tucson, Adjacent to Interstate 10 south of the Wilmot and Rita Interchange (Value range $2000 - $6000 per acre).

- Southwest of Tucson, in the vicinity of Robies Junction and west of San Xavier Indian Reservation (Value range $1000 - $3000).

- South of Tucson and southeast of the Green Valley – Continental area (Value range $500 - $2500).

The agency chairman, at the time, was a Sierra Vista Resident and retired Army officer. He initiated contact with Fort Huachuca to identify any site opportunities there. There were three sites initially considered that met the selection criteria. The selection criteria applied was:

- The area was a minimum of 100 acres
- Access to a major thoroughfare was available
- Utility infrastructure was available

The Chief and Engineering Plans and Services Division described the three locations in the Sierra Vista area being considered, in order of recommended priority as:

Site #1 – The site is located in areas 6000 and 7000 within the cantonment, located south of Squire Avenue.

Site #2 – The site is located in area 1400 within the cantonment, west of Whitside Road, approximately 3 miles southwest of Libby Army Airfield.

Site #3 – The site is located in area 7000 within the cantonment, south/southwest of Carter Street and west of Brainard Road.

After evaluating all of the sites, Fort Huachuca was considered the most cost effective location to establish a State Veterans Cemetery. The reasons for the decision were 1) cost, 2) 24 hour security provided by the garrison and 3) garrison infrastructure which includes roadway ingress and egress and utility and water support for cemetery operations. One of the reasons for not considering the Tucson sites further was the potential to disturb the endangered Pigmy Owl habitat throughout the Tucson area. This would also rule out any consideration of Davis Monthan Air Force Base as a potential site for the cemetery.

In November 1998, the Fort made its intentions known to transfer a parcel of land to the agency. By this time a fourth location was reviewed by the Arizona Veterans Service Commission

Chairman and selected as the location of choice. The fourth Fort Huachuca location is the parcel being conveyed to the Arizona Department of Veterans Services and the subject of this EA.

The proposed action at the selected location involves specific design Capital facilities components including, an administration building, a maintenance building and yard, a committal shelter and vehicle and equipment storage building roads and parking lot(s). The specific placement of these components are determined in the master plans.

The no-action alternative would be to not develop the veterans' cemetery, which would require interment of veterans in private cemeteries and other facilities elsewhere. The nearest veterans' cemetery is the National Memorial Cemetery of Arizona located north of Phoenix, approximately 3 hours from Tucson and 4 hours drive from Sierra Vista.

A component of the cemetery project would be the construction of the entrance road to the cemetery at the current intersection of Golf Links Road intersection (GLRI). The GLRI is located along the southern portion of the eastern perimeter of the Property. Currently, improvements for BST, including GLRI, are scheduled for summer 2000. Efforts to incorporate the required cemetery improvements into the currently scheduled improvements are underway.

## 3.0 AFFECTED ENVIRONMENT

The Property in grassland with an elevation change of 4,731.2 feet to 4,682.6 feet from west to east. The property is mostly vacant, raw land with the following exceptions: 0.43 miles of post boundary fence, 0.43 miles of paved, two lane boundary road; 0.43 miles of overhead electric and underground telephone cable. The property is adjacent to the post's eastern boundary, which is bounded by the City of Sierra Vista (circa 1900s); a golf course (circa 1952) on the west, the main gate to the north and vacant land to the south. The land abutting this site on three sides has been out-granted to the City of Sierra Vista for roadway (east portion) and drainage easements (1985, 1989 & 1992). Busby Basin (15.98 acres) on the north and Woodcutters Basin (39.12 acres) on the south. Both basins have been excavated to a depth of approximately 20 feet. The Property and land south of Woodcutters Basin is used to support Army communications and electronic field activities and hunting.

### 3.1 Climate

The climate of Cochise County is moderated by both land elevation and the physical characteristics of the Basin and Range topography. The average high summer temperature is 88' F. The daily mean maximum temperature for the warmest month, June, is 91' F. Although temperatures above 100' F do occur, they do not persist for any length of time. The average winter low temperature is 32' F. Average winter daytime high temperatures in the basins vary between 55' and 60' F. However, temperatures below freezing do occur a few days a year between November and February.

Cochise County receives 12 to 30 inches of rainfall yearly. This precipitation is seasonal and distributed somewhat unevenly over the area. Less than 16 inches per year falls in the lower basin areas, while 30 inches or more may fall in the surrounding mountain ranges. The summer "Monsoon" rainy season is caused by moist tropical air masses from storm centers in the Gulf of Mexico which move into southeastern Arizona during July through September. Ground surface heating and the uplift of these warmed air masses over the various mountain ranges in the County produce localized, high intensity thunderstorms with heavy rains and strong winds. These storms can cause flash floods, structural damage, and power failures. Summer storms account for up to 65 percent of the annual rainfall in the region.

Winter storms typically occur in December through February as a result of large frontal systems originating from middle latitude cyclonic activity in the Pacific Ocean. About *25* percent of the annual precipitation in the vicinity of Fort Huachuca is derived from winter storms. Although the seasonal rainfall patterns are well established in Cochise County, winter moisture is highly variable from year to year, whereas summer rainfall volume and occurrence is much more predictable.

### 3.2 Land Use

The Property's 130 acres are a portion of the (44,728 acres) of Fort Huachuca West Reservation Training areas. This West Reservation Training area has recreational use during non-training windows. In areas where military training and recreational use may overlap, if conflict arises between land uses, training and other mission-related activity have priority of use. Approximately 5,000 acres on the West Reservation are protected from training or recreation to preserve habitat and forage areas associated with Endangered Species Act compliance.

The Directorate of Human Resources (DHR) operates a number of outdoor recreation facilities and programs on Fort Huachuca. Hunting deer, black bear, javelina, and other game is allowed on almost 69,000 acres of the fort in cooperation with the Wildlife Management Branch of the Directorate of Installation Support and the Arizona Department of Game and Fish.

### 3.3 Water Resources

The Arizona Department of Water Resources (ADWR) has divided the Upper San Pedro Basin, from the Mexican Border to just north of the City of Benson, into subwatersheds. The Sierra Vista Subwatershed contains Fort Huachuca, the City of Sierra Vista, and most of the San Pedro Riparian National Conservation Area. This subwatershed is bounded by the Mexican Border to the south, the Mule Mountains on the east, the Huachuca and Mustang Mountains on the west and Arizona State Highway 82 on the north.

The groundwater system within the Sierra Vista Subwatershed of the Upper San Pedro Basin consists of the ”regional” aquifer system, composed of the upper and lower Basin *units*, and the shallow floodplain aquifer adjacent to the San Pedro River. Total groundwater reserves in the Sierra Vista Subwatershed are estimated to be approximately 31.8 million acre feet (ac-ft). The main components of the local hydrologic cycle include precipitation, evaporation, infiltration, transpiration, groundwater recharge, storage, and stream flow. Local aquifer recharge is believed to be primarily from the mountain fronts. Precipitation is considered a minor contributor to the groundwater recharge in the lower basin areas because of the low rainfall and high evaporation rates in the valley areas.

Groundwater movement within the Sierra Vista Subwatershed is believed to flow from the valley margins towards the San Pedro River. The exception to this may occur in the vicinity of the Fort Huachuca and the City of Sierra Vista’s groundwater well fields where the flow is believed to be directed towards the cone of depression, or lower groundwater levels, caused by the withdrawal of water from these areas. The cone of depression appears to be oriented in a northwest-southeast direction, comprising an area of approximately 7.5 miles. Over a twenty year period from 1966 to 1986, the groundwater level within this area has reportedly declined at a rate of approximately 1.4 feet per year. The potential significance of this decline in relation to the flow of the adjacent San Pedro River within the San Pedro Riparian National Conservation Area is currently being investigated by a number of organizations including the ADWR, the Upper San Pedro Technical Review Committee, the City of Sierra Vista, and Fort Huachuca. Numerous reports on the region have been written.

ADWR estimated the total annual water supply for the Sierra Vista Subwatershed in 1991 to be 56,820 ac-ft. The annual withdrawals for cultural and natural uses are approximately 28,850 ac-ft. Cultural uses including agricultural, domestic, municipal and industrial water supplies withdrew an estimated 13,450 ac-ft annually.

Approximately 15,400 ac-ft of natural water use was estimated along the Upper San Pedro River in the Sierra Vista area. Natural water use can be categorized as evaporation and transpiration, often referred to as evapotranspiration. Transpiration involves the use of water by vegetation. The ADWR estimated in 1987 that the water loss from riparian vegetation near the San Pedro River due to evaporation and transpiration was 14,450 ac-ft annually. Stream channel evaporation lost another 950 ac-ft annually. Natural use represents 54 percent of the total annual water use in the subwatershed. Current usage is likely to be higher, as the 1987 riparian mapping survey has not been updated to reflect the substantial acreage added to the San Pedro Riparian NCA, or the increased water use from revegetation since the original survey.

Stream flow accounts for an estimated 39,200 ac-ft of water that leaves the Subwatershed annually. The resulting deficit of 11,230 ac-ft per year constitutes the draw-down on the local aquifer system. Since the initial calculation of the water budget for the area, water consumption at Fort Huachuca steadily declined through an aggressive water conservation and treated effluent reuse program. The average annual water pumped by the installation since 1994 has been approximately 2,400 ac-ft.[6]

Due to rigorous conservation efforts on Fort Huachuca, well production has decreased to approximately 1893 ac-ft in 1999.

## 3.4 Vegetation

Lists of sensitive species, including those threatened and endangered, with potential occurrence within the project area were obtained from the Arizona Game & Fish and the U.S. Fish & Wildlife Service. The biological survey was conducted December 6 & 7, 1999 by biologist Dr. Archie M. Dickey and wildlife biologist Janine Spencer. The entire project area was surveyed on foot using transects varying from 25-30m in width. Biozone, Inc.'s Biological Assessment and Evaluation report dated December 20, 1999 is submitted as a supporting technical document and is found in Appendix F.

The project site is located in Chihuahuan semidesert grassland. There is some evidence of past and present military traffic across the project area, but the site in general is a good example of semidesert grassland.

The most conspicuous perennials are *Prosopis glandulosa* (mesquite), *Eragrostis lehmanniana* (Lehman lovegrass), *Acacia greggii* (cat-claw acacia), *Opuntia phaeacantha* (prickly-pear), *Baccharis pteroniodies (*Yerba-de-Pasmo), and *Yucca elata* (soap-tree yucca). During cemetery construction, most of these species will be replaced by turf and landscaping plantings including trees, shrubs, and vegetative cover.

## 3.5 Wildlife and TE&S Species

The area is rich in grassland bird species, a total of fifteen species were observed during the fieldwork. This grassland also provides foraging sites for hawks such as the Northern Harrier (*Circus cyaneus*) and American kestrel (*Falco sparverius*) which were observed during fieldwork. Biozone, Inc.'s Biological Assessment and Evaluation report dated December 20, 1999 is submitted as a supporting technical document and is found in Appendix F.

Mammals common to the area include Merriam's kangaroo rat (*Dipodomys gmerriami*), antelope jackrabbit (*Lepus alleni*), badger (*Taxidea taxus*), and pronghorn antelope (*Antilocapra americana).*

The *Agave palmeri* cluster was observed on the site which is known to provide possible foods sources for the Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae* ) which is an endangered species.

On a regional basis the Huachuca water umbel (L. schaffneriana) occurs in the San Pedro River in the vicinity of Fort Huachuca and the southwestern willow flycatcher nests in dense riparian habitat along San Pedro River.

## 3.6 Socioeconomic

According to 1990 U.S. census data the population of Sierra Vista including Fort Huachuca was 37,983. The Arizona Department of Economic Security data indicated the population of Sierra Vista was 39,995 in 1998.

Sierra Vista, the major population center in Cochise County, and Huachuca City adjacent to the northern boundary of Fort Huachuca, are primarily residential and light industrial communities. These cities provide services to Fort Huachuca, community residents, local industry, Mexican shoppers, and a transient population who winter in the area to escape colder northern climates. Additionally, some commercial ranching remains in the San Pedro Valley, but in the southern end of the basin commercial ranching is gradually being replaced with ecotourism as ranch land along the San Pedro River is added to the San Pedro Riparian NCA.

## 3.7 Air Quality

Cochise County is in the Southeast Arizona Intrastate Air Quality Control Region which also includes Graham, Greenlee, and Santa Cruz counties. The area lacks heavy industry or dense population centers. Prevailing wind patterns disperse local emissions from various human activities (e.g. automobiles, aircraft). Most of Cochise County, including the Fort Huachuca-Sierra Vista area, has been designated as an attainment area for routinely meeting the established air quality standards. Occasional exceptions to this occur in various parts of the county when the attainment standard for particulate matter is temporarily exceeded during periods of high winds which blow large amounts of dust from dirt roads and bare agriculture fields. Maximum wind velocities of 20 to 35 miles per hour blowing from the west/southwest are quite common in the area during the months of March through May.

# 4.0 ENVIRONMENTAL CONSEQUENCES

This section of the environmental assessment looks at the impacts of the action in the context of current and foreseeable future actions and trends in the region of influence. The proposed cemetery project would result in the following environmental effects to surface soils, water budget, noise, air quality, and the economy.

Construction of the Cemetery in Phase I would cause short term effects to surface soils, noise, and aesthetic effects stemming from construction and traffic traversing the cemetery grounds. Similar, short term effects are expected for the construction portions of Phase II and III. The cumulative impacts analysis focuses on, water resources, biological resources and socioeconomic impact, and their relationships.

## 4.1 Employment Impacts

The end of the Cold War has resulted in a general downsizing of the Department of Defense (DOD). This has resulted in a reduction in authorized and actual employment at Fort Huachuca. Regional population growth is projected to increase, despite the projected reductions at Fort Huachuca.[6] The anticipated gain of 8.74 full time equivalent employees (FTEE's) for operation and maintenance of the proposed cemetery will have an insignificant impact economic impact to the region in relation to the current and projected employment trends of Fort Huachuca and the city of Sierra Vista.

The ADVS will locally recruit for employees thereby eliminating the potential for increased water use by the new facility employees.

## 4.2 Economic Impacts

The proposed cemetery will have minimal impact on the local economy. After the initial construction of the capitol facilities on the Property, employment projections indicate employment of 8.73 FTE at the cemetery. Administrative personnel will comprised 2.26 FTE and field personnel will comprise 6.47 FTE. Employees will be hired locally where possible. The Arizona Department of veterans Services (ADVS) plans to work with Fort Huachuca in efforts to hire qualified personnel who are approaching discharge. The only position that may be filled from outside the area is the Cemetery Directory. Efforts will be made to recruit that position locally as well. The proposed cemetery is not a national cemetery. Based on information obtained from the State Cemetery Grant Service, the veterans and their eligible dependants will be drawn from a 75-mile radius around the cemetery. Initial interment is expected to last one hour and subsequent visits will last a maximum of 30 minutes. It is estimated average attendance at each interment will be 15 people. It is projected 519 burials will occur for each year of operation. This would result in at least 7785 projected visitors to the cemetery on a yearly basis.

It is anticipated that visitors to the proposed cemetery will not stay over night and restaurant business is not likely to be significantly impacted. Visits to a cemetery are of very short duration (30 minutes). If a person being buried has funeral arrangement made in Tucson, very few of the attendees will choose to drive to Sierra Vista for the graveside ceremony. Those who do will drive back to their home at the conclusion of the committal shelter ceremony. Currently the water use analysis states that one of every 15 will stay over night. This is an inflated number, since a visit to a grave in not usually turned into social event by visitors to the area. The estimated 3,000 visitors per year to the cemetery would result in an insignificant increase revenue for local service stations and restaurants.

Funeral homes in Sierra Vista are not expected to benefit from the cemetery since typically funeral arrangements will be made in the veterans own community. Existing funeral homes will continue to serve the five county area.

No new businesses will be attracted to the area because of the cemetery. Local florists will not be effected since flowers are not allowed at the gravesites due to maintenance issues, thereby eliminating the need for gravesite flowers at the time of the interment and every year thereafter.

## 4.3 Ecological Impacts

Based on the implementation of the mitigation measures in Section 5.0 (which result in zero increase in net water usage), vegetation and wildlife on a regional basis, to include the San Pedro River, will not be impacted or effected by the proposed action.

Although the Huachuca water umbel (L. schaffneriana) occurs in the San Pedro River in the vicinity of Fort Huachuca, the species appears to be well established. With the use of the mitigation measures discussed in Section 5.0 of this report, there will be no increase in net water usage and therefore no impact or effect on the endangered Huachuca water umbel (L. schaffneriana from this action.

No impact on the critical habitat for southwestern willow flycatcher in the SPRNCA will result from this action. The water use associated with this action is small in the context of the overall water use activities in the region and will have no impact on the vegetation along the San Pedro River in the National Conservation Area (NCA) due to the mitigative measures discussed in Section 5.0. Therefore no effect on the southwestern willow flycatcher will result from potential indirect effects on habitat as a result of this action.

As a result of this action, no effect on habitat for the brown-headed cowbird is anticipated.

## 4.4 Hydrology and Water Resources Impacts

As a result of groundwater pumping from the regional Aquifer in the Sierra Vista and Fort Huachuca area, a cone of groundwater depression (water level decline) exists that has been diverting groundwater flow from the San Pedro River into the cone of depression. [6] The potential impacts of the decline in groundwater levels on flow in the San Pedro River and associated surface water availability is currently under investigation by several organizations.

According to the water use analysis prepared by Xeris Group[7], it is estimated that the site would require a maximum of 28.49 ac-ft of water annually to produce stressed turf over a 30 year build-out period. Actual water use will be dependent upon the weather and actual management practices. Usage will be much less than the maximum calculated value for the first 10, and 20 year build-out periods. The increased water usage would result in increased demand for water from the private water companies servicing the area. Since water supplied by the private water companies is obtained from the regional aquifer underlying the San Pedro Basin some additional draw down of the aquifer may occur. According to the Fort Huachuca Demolition Plan EA, annual withdrawals from the watershed is approximately 28,850 Ac-ft. The maximum projected annual withdrawal for cemetery use of 28.49 ac-ft is only 0.1 percent of the total annual withdrawal. With on-going water conservation efforts by Fort Huachuca and Sierra Vista, proposed groundwater recharge projects and the mitigation measures discussed in Section 5.0, there will be not impact to groundwater levels in the basin as a result of the proposed action.

## 4.5 Air Quality Impacts

Impacts on air quality will be a small and temporary due to the nature of the proposed action. Dust would be generated on a short term basis during the construction Phases of the proposed action. Dust suppression measures will be taken to mitigate any potential impacts.

## 4.6 Noise Impacts

The principal noise sources at Fort Huachuca include vehicle traffic, flight operations at Libby Army Airfield, and military weapons training operations. Noise levels from these activities at Fort Huachuca, Sierra Vista, and Huachuca City in the Upper San Pedro Basin were studied in detail as part of the Fort Huachuca Installation Compatibility Use Zone (ICUZ) survey conducted in 1992. As expected, peak noise levels in the study areas were diurnal and coincided with the morning and afternoon rush-hour traffic periods. Further results of the ICUZ noise study clearly showed that the noise impact from both automobile traffic and the flight operations of the Libby Army Airfield/Sierra Vista Municipal Airport was minimal and in compliance with the suggested Environmental Protection Agency (EPA) and DOD criteria for noise sensitive areas.

Only minor long-term change in noise generation is anticipated by this action or other known actions within the region. The traditional firing of weapons during the burial ceremonies, additional traffic noise, and the excavation/burial procedures are expected to be infrequent (less than 1.5 times per day).

## **4.7** Cumulative Impacts

Demographic trends indicate an increasing number of local residents are non-federal retirees relocating from outside the area. They contribute accumulated wealth and steady incomes to an economic base increasingly less dependent on Fort Huachuca. The projected cumulative impact on the region from the proposed action to the economy from this action is not significant.

Impacts to ecological resources at or near Fort Huachuca are the result of the complex interactions of several different trends. Vegetation along the San Pedro river will continue to use groundwater which is transpired into the atmosphere and may have an impact on the flow of the river during the summer. Another trend affecting these resources are changing land ownership patterns as critical areas are increasingly being managed for protection of ecological resources; and better informed, more cooperative efforts to preserve and improve habitat and sensitive species. These trends are positive.[6]

The 28.49 acre feet (ac-ft) water use increase for the 30 year build-out of the proposed action in the context of expected positive cumulative impacts is small and will make no contribution to this and any other cumulative impacts as a result of the mitigation measures discussed in Section 5.0.

No impact on vegetation, habitat or river flow in the context of cumulative groundwater use is anticipated from this action, and therefore, no effect on threatened or endangered species in the San Pedro Riparian National Conservation Area (SPRNCA) will occur from this action due to the implementation of mitigation measures discussed in Section 5.0.

Therefore, this proposed action will create no cumulative impact to the regional water budget. The proposed 28.49 ac-ft of water use per year for the 30 year build out period is approximately 0.1 percent of the total annual withdrawal of 28,850, ac-ft of water from the Sierra Vista Subwatershed, which will be offset by the implementation of mitigation measures discussed in section 5.0.

## 4.8 RCRA and CERCLIS Compliance

The results of an environmental database search for RCRA and CERCLIS compliance at the site is presented below. The database search results from Environmental FirstSearch are presented in Appendix J:

### 4.8.1 Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)

The CERCLIS list is a compilation by the EPA of sites that have been or are currently under investigation for releases of hazardous substances for possible inclusion on the NPL. The minimum search distance is one-half mile.

- *The Property (was not) found in this database.*

- *CERCLIS sites were not found within the one-half mile search distance.*

4.8.2 Resource Conservation Recovery Act (RCRA) Generators Database

The RCRA generators database lists facilities that have notified the EPA that they generate hazardous waste. The minimum search distance is one-eighth mile.

- *The Property (was not) found in this database*

- *RCRA generators were not found within the one-eighth mile search distance.*

4.8.3 RCRA Treatment, Storage, and Disposal Facilities (TSDF) Database

The EPA maintains the RCRA TSDF database which identifies facilities that have obtained either a final or an interim status permit for the treatment, storage or disposal of hazardous wastes, and known facilities operating without a permit. The minimum search distance is one mile.

- *The Property (was not) found in this database.*

- *RCRA TSDFs were not found within the one mile search distance*

4.8.4 CORRACTS Database

The EPA maintains this database of Resource Conservation and Recovery Act (RCRA) facilities which are undergoing a "corrective action order" pursuant to RCRA Section 3008(h) due to a release of hazardous wastes or constituents into the environment from a RCRA Treatment, Storage, and Disposal Facility (TSDF). Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

- *The property is not listed in the database.*

- *No CORRACTS facilities were identified within the one-mile search distance.*

## 5.0 MITIGATIVE ACTIONS

The following preventive measures will be taken to ensure that the minor adverse impacts from some aspects of this project are minimized.

### 5.1 Site Specific Mitigative Actions

Site Specific Impacts would be minimized by the use of best management practices to prevent dust, noise, and soil erosion including:

1. Dust Suppression: To maintain air quality, dust will be suppressed during construction, by use of water spray.

2. Re-Vegetation: Re-Vegetation will be used to prevent dust and long term erosion and will also be used to manage wildlife. Extensive grasslands cover major portions of Fort Huachuca and the surrounding County and appear to be sufficient to mitigate the loss of approximately *13.56* acres of grasslands at the cemetery site. Habitat areas disturbed by construction will be seeded or replanted with native vegetation. The grasses would be planted as landscaping features during cemetery development. Selected re-vegetation includes native grasses, Blue/Black Gramma, Sideoats Gramma, and Curly Mesquite. [7]

3. Noise Suppression: Construction contractors will operate heavy equipment within state specifications for noise generated by construction equipment. Discharge of Firearms during funeral ceremonies will occur on an infrequent basis and be of very short duration.

### 5.2 Regional Mitigative Actions

Approximately 12.64 acre-feet of water is the anticipated need at the ten year build out of the veterans cemetery project. Approximately 8 acres of area will be landscaped at the 30$^{th}$ year consuming 28.49 acre-feet annually. The proposed mitigation is for the 30 year build out.

The following measures and best management practices are proposed to avoid, minimize, and mitigate for impacts to the San Pedro water basin as a result of the proposed action.

1. Bermuda grass, cut high, will be used on gravesites.
2. Native grasses, cut high, will be used on all other manicured areas.
3. Buffer areas will not be watered after revegetation period.
4. Temporary aboveground irrigation will be used for revegetation only and removed once plants are established.
5. Both gravesites and other manicured areas will be watered from March through October only. There also will be no watering during monsoon season.
6. All grasses will be considered dormant from November through February.
7. Best Available Technologies (BAT) procedures and technologies will be used extensively to keep water consumption as low as possible.
8. The sprinkler system will achieve a DU (Distribution Uniformity) of at least 65%.

A) Technologies

- Sprinklers will be used that will allow individual heads to be shut down when a grave is opened, a burial is in progress or an area is under repair. This will allow a completed system and then water the areas incrementally as they are developed.
- Sprinklers, and sprinkler spacing will be selected with the highest possible DU.
- Plant type, area-use type and exposure will do sprinkler zoning.
- A control system will be used that is ET-driven from on-site weather data. The system (Calsense ET1 or equal) will have a flow meter and master valve that will allow zones to

automatically shut down if a head blows or pipe bursts. It will also allow the master valve to automatically shut down if the mainline breaks. The system will automatically adjust its watering program each night based on the local ET measured that day.

- Waterless urinals will be used in the Men's restrooms.
- Composting waterless toilets will be used in all restrooms.
- Low water use fixtures will be used.

B) Procedures

- Only grave sites and manicured areas will be irrigated.
- There will be no irrigation from November through February.
- All maintenance personnel will be WILL BE REQUIRED to take advantage of classes available through the U of A extension office on Water Management.
- Training on how to set up and use the irrigation control system will be provided by the equipment manufacturer.

Unrelated to this project, the City of Sierra Vista has/will adopt an ordinance for water conservation. This new ordinance includes a requirement that new home construction contain plumbing fixtures consistent with water conservation. The ordinance also requests voluntary cooperation from established residential homes. It is not the intent of this mitigation measure to dictate to the City of Sierra Vista. Rather it is a commitment to support the City in its effort by establishing a water conservation fund.

9. Establish a water conservation fund with the City of Sierra Vista. The figure of $10,000 has been established and calculated as follows:

A) A five piece water conservation kit (Exhibit B) as manufactured by Niagara Conservation Products (Kit) is anticipated to save 26.1 gallons per capita per day and 9,526.5 gallons per capita per year. Converting existing plumbing fixtures within 975 homes with the Kit will conserve 9,283,000 gallons (28.49 ac-ft) of water per year. At a cost of $3.50 per Kit, 975 kits is anticipated to cost $3,700. Kit information is included in Appendix G.

The five-piece water conservation kit by Niagara Conservation Products consists of:

- Toilet Tank Bank – Saves approximately one gallon of water per flush.
- Toilet Tank Fill Cycle Diverter – Saves approximately 1.5 gallon of water per flush.
- Motion Flow Showerhead – Provides a massage and raindrop like spray pattern. Saves approximately 2.5 gallons of water over conventional models.
- Package of Leak Detection Tablets – For use in detection of costly toilet tank leaks.
- Faucet Aerator for the Kitchen - Saves approximately 2.5 gallons of water per minute over conventional kitchen faucet sink aerators.
- Faucet Aerator for the Bathroom - Saves approximately 2.5 gallons of water per minute over conventional bathroom faucet sink aerators.

B) A waterless urinal on average conserves 45,000 gallons of water a year. Fourteen waterless urinals would conserve 630,000 gallons (1.93 ac-ft) of water per year. At a cost of approximately $500 per unit, the capital outlay for 14 urinals is $7,000.

A total of 30.42 ac-ft of water per year will be conserved using these two water conservation methods. This amount is in excess of the proposed site annual water requirement for the 30 year build out of 28.49 ac-ft per year. The plan will be implemented over the 30 year build out.

## 5.3 Indirect Mitigative Actions

Water use mitigation may also be assisted by current cremation trends in the United States. The surface area of a cremation burial site is only 16 square feet verses 24 square feet for a full casket. This would result in less surface area to be irrigated. According to the Cremation Association of North America [9] (Appendix H), 23 percent of all deaths in the U.S during 1997 resulted in cremation. Based on current trends, the percentage of U.S. cremations to death rate is expected to reach over 33 percent by the year 2010. Arizona is among the top five states for percentage of cremations. In 1997, 53 percent of deaths resulted in cremation. Projections indicate that by 2010, 87 percent of deaths in Arizona will result in cremation. The calculated 28.49 ac-ft of annual water usage for the cemetery was derived using a 65 percent cremation rate.

## 6.0 STATEMENT OF REMAINING IMPACTS FOLLOWING MITIGATION

### 6.1 Aesthetics

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

X VEGETATION REMOVAL
BUILDING RESTORATION
X LANDSCAPE ALTERATION
X UTILITY OR SERVICE AREA DEVELOPMENT
X OPEN SPACE ALTERED
GROUND IMPROVEMENT AMENITIES
X NEW BUILDING CONSTRUCTION

ADVERSE — X LONG TERM
X BENEFICIAL — SHORT TERM

Construction design intent is to create a cemetery that honors our veterans; to create an environment that evokes feelings of peace, tranquillity and reverence. Construction materials will be employed in a manner sensitive to the natural context. They will compliment the environment in harmony with its scale, color and form in a way that enhances the quiet dignity of the Property.[v]

Although assessment of aesthetics is highly subjective, development of the site would appear to enhance the site by converting the land from native grasslands, to a cemetery in harmony with the surrounding environment. The design and management of the cemetery to blend with the surrounding environment with an emphasis on visual appeal should mitigate the loss of native grasslands and its equally quiet setting.

6.2 Air Quality

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | | | |
|---|---|---|---|
| | CARBON MONOXIDE | | PRESENCE OF ODORS |
| | PHOTOCHEMICAL OXIDANTS | X | PARTICULATE EMISSIONS |
| X | NITROGEN OXIDES | X | HYDROCARBONS |
| X | TEMPORARY | | SULFUR OXIDES |
| X | ADVERSE | | LONG TERM |
| | BENEFICIAL | X | SHORT TERM |

Short-term loss of air quality can be expected from cemetery construction activities. Sources of air emissions are automotive exhaust from construction equipment and trucks, dust from earth moving activities, and dust from vehicles operating on exposed soil. These emissions are expected to cease upon completion of cemetery construction.

Long-term effects of cemetery development would result in loss of grassland from the site. Intake of carbon dioxide and release of oxygen during photosynthesis would be reduced with a reduction of grass cover on the property.

A slight rise in carbon monoxide may occur during funeral ceremonies but the occurrences are expected to be of short duration (less than 1.5 hours).

Dust will be suppressed during construction primarily through use of spraying water over the working areas. A component of the construction process includes reseeding with native grasses and other native plants. These mitigative actions are also discussed in Section 5.0. Because the proposed action is within an air quality attainment area, and no new major sources of emissions will begin operation at the Property as a result of this action, the impact of this action was determined to be *de minimis* under the Clean Air Act.

The no-action alternative will not result in any changes to local air quality.

6.3 Community Services

| IMPACTS |
|---|

| | | | |
|---|---|---|---|
| S | | | N |
| | | | X |

ATTRIBUTES

ALTERATION OF PUBLIC FACILITIES
ALTERATION OF PUBLIC SERVICES
ALTERATION OF PUBLIC UTILITIES

| | |
|---|---|
| ADVERSE | LONG TERM |
| BENEFICIAL | SHORT TERM |

Community services are not expected to be affected by the cemetery project because services are not currently supplied to the proposed cemetery site. Services provided after the cemetery is developed would be police and fire protection.

6.4 Cultural Resources

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | |
|---|---|
| NATIONAL REGISTER PROPERTY | CRITERIAOFADVERSE EFFECT |
| ELIGIBLE PROPERTY | CRITERIA OF EFFECT |
| ACTION REQUIRES HISTORIC PRESERVATION OFFICER COORDINATION | |
| ARCHITECTURALLY SIGNIFICANT | PROPERTY |
| ADVERSE | LONG TERM |
| BENEFICIAL | SHORT TERM |

Cultural resources of the cemetery site are characterized by recreational use of the land for hunting. Archaeological and other historical resources are not known to be located on the property.

Development of the site would alter the current cultural use of the site from active recreation to passive pursuits associated with cemetery visitation. Recreationists could be expected to be displaced from the 130-acre site to surrounding Fort Huachuca grasslands, which are in ample supply in the area. In addition, the cemetery itself would become a cultural resource providing for the interment needs of *25,000* veterans and offering an opportunity to commemorate the deceased.

Cultural Resources

Between December 7 and 8, 1999, Archaeological Research Services, Inc. (ARS) performed a Class III (Intensive Field Inventory) Cultural Resources (archaeological) survey of approximately 130 acres of land within Fort Huachuca, immediately west of the town of Sierra Vista, in Cochise County, Arizona. Fieldwork was carried out under the conditions and authority of Arizona State Museum (ASM) Permit No. 99-17BL for non-collection, non-disturbance surveys. Written notification of ARS' intent to carry out the project was sent to ASM on December 15, 1999. The survey was undertaken in order to identify, record, and evaluate any cultural resources located within the study area that might be eligible for listing on the National Register of Historic Places in support of an Environmental Assessment being prepared for a proposed cemetery.

Prior to the initiation of fieldwork, archaeological and historical site records were reviewed at ARS, ASM, the Arizona State Historic Preservation Office (SHPO), and Fort Huachuca to determine whether any previously recorded cultural resources were located within or immediately adjacent to the study corridor. Additionally, a General Land Office (GLO) plat for T22S, R20E (#2499 filed July 14, 1902) was reviewed at the U.S. BLM state office for evidence of historic sites or features that may have been present immediately adjacent to the study area.

The project area was subjected to a Class III (Intensive Field Inventory) Cultural Resources (archaeological) survey, resulting in 100 percent coverage of the ground surface. Since ground surface visibility within the study area ranged from very low (10 percent) to moderate (50 percent) due to waist-high grasses and weeds, survey transects of no greater than 15 meters (45 feet)

wide were employed to cover the entire study area. During the survey, identified cultural resources were plotted on the Fort Huachuca 7.5 minute USGS quadrangle and documented in written notes. Whenever cultural remains were identified, the area surrounding the remains was intensively examined for additional features or artifacts.

Cultural Findings

A total of 12 isolated artifact or feature occurrences (IOs) were recorded within the project area as a result of the current study (refer to Figure 1). These IOs include a single piece of chipped stone debitage and 11 rock piles or alignments. Each of the 11 rock piles or alignments are interpreted as representing the remains of unspecified modern military training activities. The single chipped stone artifact is believed to be of prehistoric origin.

Each of the rock piles and alignments are similar in that all appear to be limited to the present surface, and none exhibit a great degree of sedimentation or other indications of antiquity. Given the relatively close proximity of IOs 1 through 6, it is possible that each these rock features were created during a single military training exercise.

Literally hundreds of rock piles, clusters, and alignments have been previously documented within Fort Huachuca. Seven types of rock features have been distinguished based on differences in composition and location across the landscape (Vanderpot 1993:201- 206). These ambiguous features have been interpreted as the remains of prehistoric hearths or roasting pits, plant preparation platforms, basket rests, and agricultural planters, as well as the remains of historic/modern military ground training features. A complete report was submitted as a technical document.

Results of testing and data recovery efforts indicate that the vast majority of these features are surface manifestations with very little or no depth. Unfortunately, associated temporally diagnostic artifacts necessary to place these ambiguous features into the correct historic context are rare. Similarly, previous archival research and personal interviews with Army personnel have failed to reveal information concerning the origin and use of these features (Wilson 1982: Vanderpot 1993). The isolated rock features located within the current study area do not appear to contain important information that would warrant their inclusion on the National Register of Historic Places.

Affects on Cultural Resources

As a result of the survey, ARS recorded 12 previously undocumented isolated artifact or feature occurrences within the current study corridor. These isolated occurrences (IOs) neither represent important cultural resources, nor are they eligible for listing on the National Register of Historic Places. In fact, the majority of the IOs were interpreted as representing materials associated with unspecified modern military training activities.

In the unlikely event that any undocumented subsurface cultural features or deposits are encountered during ground disturbing activities associated with the proposed cemetery, these activities must be discontinued in the immediate area surrounding the remains until the State Historical Preservation Office (SHPO) can be consulted to evaluate their nature and significance. The Cultural Resources Services Report is found in Appendix I.

REFERENCES CITED

Vanderpot, Rein
1993 *A 10,200 Acre Cultural Resources Survey of Three Proposed M1 Tank Training Areas on Fort Huachuca, Arizona*. Statistical Research Technical Report 93-8, Tucson.

Wilson, J.P.
1982a *Cultural Resources of the Proposed Southern Arizona Auxiliary Airfields, Cochise and Pima Counties, Arizona*. Report No. 28. Benham Group, Las Cruces, New Mexico.

1982b *A Supplemental Survey of the Southeastern Arizona Auxiliary Airfield, Libby Army Airfield, Fort Huachuca, Arizona*. Report No. 30, Blanton and Company, Tucson.

6.5 Economic Activity

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | | | |
|---|---|---|---|
| | REDUCTION IN WAGES TO AREA | | |
| X | LOCAL PURCHASE OF GOODS AND SERVICES | | |
| X | ADDITIONAL WAGES WILL BE AVAILABLE TO AREA | | |
| X | INCREASE OR DECREASE DIRECT WORK FORCE | | |
| | ADVERSE | X | LONG TERM |
| X | BENEFICIAL | | SHORT TERM |

Currently the Property is not associated with any specific economic activity.

Retail business in nearby Fort Huachuca and the City of Sierra Vista is expected to benefit only slightly as cemetery visitors may patronize local shops, gas stations, restaurants, and in rare instances, lodging facilities. The estimated 3000 visitors per year to the cemetery would result in insignificant increases in revenues for local service stations and restaurants. As discussed in Section 4.2, it is not anticipated that area hotels would not realize a long-term measurable increase in revenues as a result of the proposed action.

There would be a minor, short-term positive impact from the construction contracts. Salaries and expenditures for the area are not anticipated to change as a result of this action.

Projected employment will grow slowly over the 30 year life of the proposed action, with a peak projected staff of 8.73 FTEE.

The employment increase resulting from this action is not anticipated to have a significant impact on the local or regional economy. ADVS will recruit locally for cemetery employees. No mitigation is required.

6.6 Floodplains, Wetlands and Watersheds

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

100-YEAR FLOODPLAIN
500-YEAR FLOODPLAIN
COASTAL ZONE MANAGEMENT AREA
CRITICAL ENVIRONMENTAL AREA OF
WETLANDS
CRITICAL ACTION (E.O. 11988)

| | |
|---|---|
| ADVERSE | LONG TERM |
| BENEFICIAL | SHORT TERM |

The Federal Emergency Management Act (FEMA) flood insurance rate map Panel 0005C, dated September 24,1984 does not present any data for the property or any Fort Huachuca land. This FEMA map shows the nearest floodplain is located across BTS along the southern portion of the eastern boundary of the Property. This floodplain is listed as Zone A1, (which is defined as an area of 100-year flood: base flood elevations and flood hazard factors determined).

Within the south range, immediately to the southeast of the cemetery site is an incomplete detention basin (Wood Cutters Basin) that is approximately twenty-five acres. The site is continuously used as a borrow pit and has not been excavated to its intended design. Drainage of the detention basin flows through a culvert under BST. The outflow area from this culvert is shown on the FEMA map Panel 0005C, as a floodplain listed as A4, (which is defined as an area of 100-year flood: base flood elevations and flood hazard factors determined).

The detention basin (Busby) to the north of the cemetery site is a completely excavated detention basin that handles drainage from an area that comprises the cemetery site. The Property lies between Busby and Wood Cutters Basin and appears not be on a listed floodplain.

According to the Long Range Component of the Real Property Master Plan date September 1997, there are no wetlands as defined by state of federal guidelines occurring on Fort Huachuca.

6.7 Geology and Soils

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | | | |
|---|---|---|---|
| | ROCK EXCAVATION | X | SOIL EROSION |
| X | CUT/FILL OPERATIONS | | SOIL COMPACTION |
| X | GRADING | | SOIL HORIZON REMOVAL AND MIXING |
| | | | |
| X | ADVERSE | | LONG TERM |
| | BENEFICIAL | X | SHORT TERM |

Regional and local geology has previously been reported by others[1,2] and is included here by reference. A subsurface exploration was conducted at the site using test pits extending to depths of ten (10) feet below the existing ground surface. This study[1] found surface to depths of one (1) foot to the full depth of exploration to be Silty or Clayey SANDs and Sandy CLAYs of medium to low plasticity. The materials underlying the surface soils consisted of Clayey SANDs, SANDS, and some Gravel-Cobble strata. Groundwater was not encountered in any test pit at the time of exploration.

On-site specific soil and geotechnical recommendations are contained in the referenced report[1]. The only apparent potentially adverse off-site impact is the transport of site soils through erosion activity. The site surface soils may be characterized as moderately to highly susceptible to erosion, however current construction industry “best practices” and available landscape and stormwater design elements should have no particular difficulty in alleviating any potential erosional activity.

Construction of the Cemetery in Phase I would cause short term adverse effects to surface soils, noise, and aesthetic effects stemming from construction and traffic traversing the cemetery grounds. Similar, short term adverse effects are expected for the construction portions of Phase II and III.

6.8 Hydrology and Water Quality

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | |
|---|---|
| | POTENTIAL FOR EROSION AND/OR SEDIMENTATION (NPDES) |
| | ALTERATION/QUALITY CHANGE OF SURFACE WATER DRAINAGE |
| | POTENTIAL FOR CONTAMINATION OF WATER REGIME (FROM HAZARDOUS/TOXIC WASTES) |
| X | ALTERATION/QUALITY CHANGE OF GROUND WATER REGIME |

| | | | |
|---|---|---|---|
| X | ADVERSE | X | LONG TERM |
| | BENEFICIAL | X | SHORT TERM |

Regional Water Resources

The discussion regarding regional hydrology and water usage is presented in Section 3.3. The projected annual usage, by the cemetery, of 28.49 ac-ft of water will slightly impact the water budget in the Sierra Vista subwatershed. However the proposed mitigative actions discussed in Section 5.0 will off-set the projected water usage by the facility.

Site specific Hydrology and Water Quality

The topography, and therefore surface hydrology, of this site is characterized by approximately sixty feet of fall (a 2 to 3 percent grade) from the northwest to the southeast corners of the site. Site drainage therefore trends to the east and north as sheet surface flow crossing the property. Surface water will also infiltrate through the relatively permeable sandy surface soils, see "Summary of Percolation Test Results" contained in the Interim Geotechnical Report[1]. Subsurface migration will presumably trend downward and towards the northeast until the permanent groundwater is encountered.

Construction and development of the cemetery would result in alterations in the site and local hydrology. However, short and long-term stormwater management practices during design, construction, and maintenance of the completed facility are expected to mitigate any potentially adverse impact related to site or off-site drainage.

With the use of best management practices (BMPs) throughout the design, construction and maintenance of the cemetery, no adverse affects upon water quality are anticipated. BMPs are discussed in Section 5.0.

6.9 Land Use

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | |
|---|---|
| | ENCROACHMENT ON EXISTING LAND USE |
| | SEWAGE-WASTE TREATMENT FACILITY |
| X | CHANGE IN LAND USE PATTERN |
| | UTILITIES |
| | SERVICE AND OPERATIONAL |
| | ROADS AND PARKING |
| | HOSPITAL- MEDICAL FACILITY |
| X | RECREATIONAL |
| | LABORATORIES-CLINICS |
| | ADMINISTRATIVE FACILITY |
| | GROUND IMPROVEMENTS |
| X | CEMETERY |

| | | | |
|---|---|---|---|
| | ADVERSE | X | LONG TERM |
| X | BENEFICIAL | | SHORT TERM |

Existing land use is to support Army communications and electronic field activities, with secondary use as a recreational resource. Given the high percentage of grassland cover on Fort Huachuca, these uses of the Property do not appear to add exceptional value to the site (see Air Quality, above). Replacing 130 acres of grassland with a cemetery facility will not have an adverse effect on land use in the area.

6.10 Noise

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | | | |
|---|---|---|---|
| | UTILITY SOURCE GENERATION | | |
| | OPERATIONAL | | |
| X | TRAFFIC | | |
| | VIBRATIONS | | |
| X | CONSTRUCTION | | |
| | | | |
| X | ADVERSE | | LONG TERM |
| | BENEFICIAL | X | SHORT TERM |

Existing noise levels at the cemetery site are generated mostly by traffic on the adjoining highway and the activities inherent to a military base. Based on site observations, noise levels are generally low.

Construction activities would result in local noise disturbances caused by heavy equipment operating on the site, and the equipment would be required under state law to meet exhaust standards. Noise effects would be also minimized by contractors operating within state specifications for noise generated by construction equipment. Proposed mitigative actions are discussed in Section 5.0

Following construction completion, frequent noise sources at the cemetery would be lawn-care equipment, visitors' vehicles, and service and delivery vehicles. Firearms discharged during committal ceremonies would cause higher noise levels for short durations on an infrequent basis. As stated in Section 4.2 at least 3000 visitors per year will be attend the proposed cemetery. This will result in periodic increases in motor vehicle traffic that may generate some additional noise. However the only time a large number of vehicles may converge on the cemetery is during funeral ceremonies. Typical traffic moves slower that normal during funeral processions resulting in a very low level of vehicular traffic noise.

6.11 Potential for Generating Substantial Controversy

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | | | |
|---|---|---|---|
| | INDIRECT OR DIRECT EFFECTS ON COMMUNITY ORGANIZATIONS | | |
| | INTERPRETATION OF HOW THE ACTION WILL AFFECT COMMUNITY RESPONSE IS IN QUESTION | | |
| X | CONSISTENT WITH PROFILE OF COMMUNITY | | |
| | ADVERSE | X | LONG TERM |
| X | BENEFICIAL | | SHORT TERM |

Development of the cemetery is generally favored in the community as an asset to the local economy. Issues that may arise are the potential impacts to the total water budget in the Sierra Vista Subwatershed and potential short term increases in traffic during ceremonies at the proposed cemetery. However the actual projected usage of water by the cemetery is expected to have an insignificant impact once the recommended mitigative actions are implemented. Mitigative actions are discussed in Section 5.0. With the proposed widening of Buffalo Soldier Trail to four lanes the short term traffic flow increases during funeral ceremonies will have a minor impact on traffic flow in the vicinity of the proposed cemetery.

6.12 Real Property

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | |
|---|---|
| | REDUCTION OF LAND ON TAX ROLLS |
| | CHANGES OF LAND VALUES |
| | ENCROACHMENT ON CRITICAL AREAS |
| X | ACQUISITION (DONATION, PURCHASE) |
| | EXCESS ACTION |
| X | CHANGES IN OWNERSHIP |
| X | BOUNDARIES |
| | CHANGES OF EASEMENT OR RIGHT OF WAY |

| | | | |
|---|---|---|---|
| | ADVERSE | X | LONG TERM |
| X | BENEFICIAL | | SHORT TERM |

The Property is currently part of Fort Huachuca is exempt from tax rolls. The cemetery also would be tax-exempt. As such, change in land value is not anticipated. Ownership would change from the Federal Government to the State of Arizona.

The conversion of Property to cemetery grounds does not appear to affect land values in the area, primarily because the surrounding land on three sides of the Property is tax exempt Federal land. Due to the low estimated number of homeless in the county, construction of this project is not anticipated to have a significant impact on homeless persons.

Socioeconomic impacts are not anticipated to be significant, and under NEPA, social impact is not sufficient for a determination of significance, or to warrant an environmental impact statement.

6.13 Solid/Hazardous Waste

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

STEEL REMOVAL/DEMOLITION
BULK OPERATIONAL WASTE
EARTH AND/OR ROCK DEBRIS
CONSTRUCTION SITE STOCKPILING
CONCRETE DEBRIS
HAZARDOUS WASTE

| | | | |
|---|---|---|---|
| | ADVERSE | X | LONG TERM |
| X | BENEFICIAL | | SHORT TERM |

Solid and/or hazardous waste currently is not generated on the property. With development of the cemetery, proper disposal of solid waste would become necessary, and a local waste disposal firm would be contracted for this purpose. Evidence of hazardous waste was not observed during the site visit.

The cemetery will not be used as an embalming or cremation facility. Embalming fluids deposited in the ground within caskets would be expected to contain formaldehyde, a human carcinogen and a major component of the fluids. Studies have shown that embalming fluids do not pose a significant environmental risk at old cemeteries where wooden caskets have been placed directly into the ground. For the proposed cemetery, the risk is nearly negated by the use of lawn crypts.

6.14 Transportation and Parking

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

X ALTERATION OF PUBLIC TRANSPORTATION
ALTERATION OF EXISTING ON-SITE ROADS OR PARKING
ALTERATION OF FACILITY ACCESS ROADS OR PARKING
X CONSTRUCTION OF NEW ROADS

ADVERSE — X LONG TERM
X BENEFICIAL — SHORT TERM

The proposed cemetery property is located on the west side of Buffalo Soldier Trail (BST). Currently BST is a major arterial serving the area. Studies of projected traffic movement have indicated that when maximum build-out of the cemetery is achieved BST will carry an average of 27,880 vehicles per day. The current roadway configuration near the site is depicted on the Site Plan in Appendix A.

Cemeteries typically generate minimal traffic under normal conditions during a typical day. Funeral ceremonies are considered special events and therefore, are not included in standard analysis of traffic flow for the site. However, with at least 3000 or more annual visitors expected to attend the cemetery, one may expect from 600 to 1500 vehicles traveling to and from the cemetery annually.

Buffalo Soldier Trail has been approved for widening by the City of Sierra Vista and the Arizona Department of Transportation. The current two lane road will be widened to four lanes and a cemetery access road will be created immediately west of Golf Link Road. The intersection of Golf Link Road and BST will be modified to include a traffic light, turn lanes and adequate storage for vehicles in the median. [5] At the time of this EA report actual design plans were not available. Additional traffic generated by the proposed cemetery will have minimal impact on the average daily traffic near the site and proposed road and intersection improvement will minimize any potential traffic conflicts.

Boston Road is currently the main access road for Fort Huachuca personnel to reach the southern portions of Fort Huachuca. This road parallels BST and runs across the eastern portion of the proposed cemetery property. Options to relocate this road outside of the cemetery grounds were quickly determined to be unfeasible due to significant additional costs, adverse impact to native grasslands and Project/area aesthetics. The road will be gated on both and north and south side of the cemetery and military personnel will only have access to the road as it crosses the cemetery. Therefore there will be no increase in traffic on this road.

6.15 Utilities

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

| | | | |
|---|---|---|---|
| X | WATER SYSTEM, SUPPLY | | EXCAVATION |
| X | STORM WATER DRAINAGE | | |
| | SEWAGE TREATMENT | | CONSERVATION |
| X | ELECTRICAL | | |
| | HEAT GENERATION | | |
| | AIR CONDITIONING AND REFRIGERATION | | |
| | MAINTENANCE AND REPAIR | | |
| | ADVERSE | X | LONG TERM |
| X | BENEFICIAL | | SHORT TERM |

Wastewater Disposal

The Property currently is undeveloped and has no wastewater treatment facility. During cemetery development, the facility will be connected to the City of Sierra Vista Sewer System.

Storm Drains

Site drainage and grading will be designed to minimized storm drainage run-off with shallow swales, berms and depressions that will enhance groundwater recharge, minimize erosion and promote vegetative growth.[5]

Fuel Storage

Details regarding fuel storage was not available at the release of this EA.

Drinking Water

The water supply for this facility is expected to be provided by one of the private water companies licensed by the City of Sierra Vista, Arizona. This site, along Buffalo Soldier Trail, has frontage within the Villa Vista Water Company south of Golf Links Drive and Arizona Water Company north of Golf Links Drive.

The City of Sierra Vista is committed to conserving water and has established some water conservation guidelines, required water-saving plumbing fixtures and implemented water use regulations.

Some of the required equipment constraints are:

1. Lavatory faucets will have a mechanism that causes the faucets to close after delivering no more than an average of one quart of water.
2. Waterless urinals shall be installed where urinals are utilized.
3. Toilets shall not use more than 1.6 gallons per flush.

Project plans include low flow and waterless toilets.

Irrigation

The Project will use landscaping with native plants, which are adapted to our climate and soils and generally become established sooner and require less water than non-native plants. Bermuda Grass will be used on grave sites and native grasses will be used on all other manicured areas.

A permanent irrigation system will be installed to water grave sites and other manicured areas from March through October only. Grasses will be considered dormant from November through February. The system will include the following features to reduce water consumption:

- Valve-in-head sprinklers will be used to allow individual heads to be shut down when a grave is opened, a burial is in progress or an area is under repair. This will allow a completed system and then water the areas incrementally as they are developed.
- Sprinklers, and sprinkler spacing will be selected with the highest possible DU.
- Sprinkler zoning will be done by plant type, area-use type and exposure.
- A control system will be used that is ET-driven from on-site weather data. The system (Calsense ET1 or equal) will have a flow meter and master valve that will allow zones to automatically shut down if a head blows or pipe bursts. It will also allow the master valve to automatically shut down if the mainline breaks. The system will automatically adjust its watering program each night based on the local ET measured that day.

A temporary above ground irrigation system will be allowed up to 1-year for the establishment of newly seeded low water use species turf and landscaping within the first 30-days of low water use native plants.

Electrical

Electrical service will be provided by Sulfur Springs Valley Electric Cooperation (SSVEC). Adverse environmental effects are not anticipated.

6.16 Vegetation and Wildlife

| IMPACTS |
|---|

| S | | | N |
|---|---|---|---|
| | | | |

ATTRIBUTES

PRESENCE OF ENDANGERED OR THREATENED WILDLIFE
TREE REMOVAL

X GROUNDCOVER REMOVAL

PRESENCE OF SIGNIFICANT WILDLIFE SPECIES

| | | | |
|---|---|---|---|
| | ADVERSE | X | LONG TERM |
| X | BENEFICIAL | | SHORT TERM |

Site Specific Impacts

Vegetation

The amount and type of affect on the existing vegetation is totally dependent on the final design of the cemetery. Native trees, shrubs and grasses are planned for the cemetery to minimize the total impacts at the site.

Pesticides, if used, would be applied by or under the supervision of a staff member holding a commercial pesticide application certification. Because the cemetery is not a commercial facility, it is exempt from certification requirements under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Wildlife and TE&S Species

There is no foreseeable impact of the project on any individuals of any of the federally listed threatened or endangered species.

The *Agave palmeri* cluster is a possible food source for the Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae* ) which is an endangered species. This plant will be either transplanted outside the project area or protected in place to maintain this food source. Due to the proposed transplanting and/or protection in place of the *Agave palmeri* cluste*r* there should be no adverse effects to the Lesser long nosed bat populations. Efforts will also be made to transplant cacti and *Yucca* species whenever possible.

A game fence surrounding the project area will be built to Arizona Game & Fish standards for wildlife.

Regional Impacts

Based on the implementation of the mitigation measures in Section 5.0 (which result in zero increase in net water usage), vegetation and wildlife on a regional basis, to include the San Pedro River, will not be impacted or effected by the proposed action.

The site will require a maximum of 28.49 ac-ft of water annually to produce stressed turf over the 30 year build-out period. Actual water use will be dependent upon the weather and actual

management practices. The annual withdrawals from the watershed is approximately 28,850 Ac-ft. The maximum projected annual withdrawal for cemetery use of 28.49 Ac-ft is 0.1 percent of the total cumulative annual withdrawal. With on-going water conservation efforts by Fort Huachuca and Sierra Vista, proposed groundwater recharge projects, and the proposed mitigative actions discussed in Section 5.0 there will be no impacts or effects to groundwater levels in the basin as a result of the proposed action.

Although the Huachuca water umbel (L. schaffneriana) occurs in the San Pedro River in the vicinity of Fort Huachuca, the species appears to be well established. With the proposed mitigative actions there will be no increase in net water usage and therefore no impact or effect on the endangered Huachuca water umbel ( L. schaffneriana from this action.

No impact or effect on the critical habitat for southwestern willow flycatcher in the SPRNCA will result from this action with implementation of the mitigative actions discussed in Section 5.0.

As a result of this action, no effect on habitat for the brown-headed cowbird is anticipated.

## 7.0 SOURCES CONSULTED

Federal Department of Veterans Affairs
United States Geological Survey
Arizona Department of Administration
Arizona Department of Veterans Services
Arizona Department of Water Resources
Arizona State Historic Preservation Office
Arizona Geologic Survey
Directorate of Installation Support, Fort Huachuca
General Land Office (GLO)
ENGINEERING (Ninyo & Moore Geotechnical and Environmental Services Consultants)
A/E, (Carter & Burgess)
STATE REGULATORY AGENCY (Arizona Department of Environmental Quality)
LOCAL GOVERNMENT (City of Sierra Vista)
LOCAL GOVERNMENT (Cochise County)
BIOLOGICAL CONSULTANT (Biozone)
ARCHAEOLOGICAL CONSULTANT (Archaeological Research Services, Inc.)
ENVIRONMENTAL SERVICES (TRACK Info Services, LLC (TRACK)

FEDERAL REGULATIONS ESTABLISHING ENVIRONMENTAL STANDARDS

FI - REQUIRES FURTHER INVESTIGATION (SEE ATTACHMENT)
MR - MITIGATION REQUIRED, NON-COMPLIANCE ANTICIPATED
CA - COMPLIANCE ANTICIPATED
NA - NOT APPLICABLE

NA EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT (Specify 100- YEAR, CRITICAL ACTION, or 500-YEAR)

NA EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS

NA EXECUTIVE ORDER 11987, EXOTIC ORGANISMS

CA EXECUTIVE ORDER 12088, FEDERAL COMPLIANCE

CA EXECUTIVE ORDER 12898, FEDERAL ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOHE POPULATIONS

CA FEDERAL WATER POLLUTION CONTROL ACT, SEC. 313, AS AMENDED BY CLEAN WATER ACT OF 1977 {33 USC 1323)

CA ENDANGERED SPECIES ACT AS AMENDED (PL 93-205) NA WILD AND SCENIC RIVERS ACT (16 USC 1274 ET SEQ.)

CA NOISE CONTROL ACT OF 1972

NA SAFE DRINKING WATER ACT, SEC, 1447, (PL 93-523)
NA COASTAL BARRIER RESOURCES ACT (PL 97-348)
NA COASTAL ZONE MANAGEMENT ACT (16 USC 1451 ET SEQ, AMENDED BY PL 101-508

NA EPA REGULATIONS ON DISCHARGE OF DREDGED OR FILL MATERIAL INTO NAVIGABLE WATERS (40 CFR 230)

NA EPA REGULATIONS ON DETERMINATION OF REPORTABLE QUANTITIES FOR HAZARDOUS SUBSTANCES (40 CFR 117)

CA EPA REGULATIONS ON THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (40 CFR 122)

NA EPA REGULATIONS ON POLYCHLORINATED BIPHENYLS MANUFACTURING, PROCESSING DISTRIBUTION IN COMMERCE AND USE PROHIBITIONS (40 CFR 761)

NA ADVISORY COUNCIL ON HISTORIC PRESERVATION REGULATIONS, PROTECTION OF HISTORIC AND CULTURAL PROPERTIES (36 CFR 800)

References for geology, soils and hydrogeology


1. *Interim Geotechnical Report, State Veterans Cemetery, Sierra Vista, Arizona*. Ninyo & Moore Geotechnical and Environmental Services Consultants; Phoenix, Arizona; January 2000.
2. *Programmatic Environmental Assessment, Demolition of Excess Real Property at Fort Huachuca*, March 1998
3. *Long Range Component of the Real Property Master Plan*, September 1997.

[i] Sierra Vista Veterans Cemetery Worksheet, Operational and Maintenance Costs (40 year Projection) date January 12, 2000.

[ii] According to the VA Center in Tucson, Arizona, referenced from: DRAFT Arizona Department of Veterans' Services, State Cemetery in Southern Arizona, Environmental Assessment Issues, faxed 12-30-99

[iii] Environmental Baseline Survey, Fort Huachuca, dated November, 1999

[iv] see footnote 1

[v] Site Characteristics Report, Arizona State Veterans Cemetery, State of Arizona Department of Veterans Affairs, Carter-Burgess, January 2000.

[6] Programmatic Environmental Assessment, Demolition of Excess Real Property at Fort Huachuca, March 1998

[7] VA State Cemetery, Sierra Vista, Arizona, Water Use Analysis, Xeris, January 14, 2000.

[8] Sustaining and Enhancing Riparian Migratory Bird Habitat on the Upper San Pedro River, Commission for Environmental Cooperation, June 15, 1998.

[9] Riding the Cremation Wave to 2010 and Beyond, The American Cemetery for November 1998.